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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,100	07/13/2001	Norman F. Robillard	1769-92	1322
23117	7590	03/19/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			OCAMPO, MARIANNE S	
		ART UNIT	PAPER NUMBER	
		1723		

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/904,100	ROBILLARD, NORMAN F.
	Examiner	Art Unit
	Marianne S. Ocampo	1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 09 December 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4-7,9-11 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,2,4-7,9-11 and 16-20 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date, _____
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 2 and 4 - 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al. (EP 213,930) in view of Ashelin et al. (US 5,154,827).

3. Concerning claim 1, Thomas et al. disclose a filter cartridge comprising:

- a multilayer pleated filter media (element, 10), the filter media including a filter layer (14) formed of a porous filter media such as paper or roving material or any material having a melt temperature equal to or higher than the material forming the end caps 16-18) and at least one support layer (24) for the filter layer (14) wherein the at least one support layer (24) being an expanded plastic netting (i.e. polymeric film mesh) wherein individual pleats of the multiplayer pleated filter media having respective elongate pleat axes disposed substantially parallel to a central longitudinal axis of the cartridge and the expanded plastic netting/polymeric mesh (24)

being formed by a dense plurality of generally diamond-shaped apertures having respective long and short dimensions and the expanded plastic netting/polymeric mesh (24) being disposed such that long dimensions of the diamond-shaped apertures thereof are oriented substantially transverse to the elongate pleat axes of the pleated filter (10,14), as in figs. 1 – 3 and pages 3 – 4.

Thomas et al. fail to disclose the filter layer being a filter membrane layer.

4. Ashelin et al. teach a similar pleated filter cartridge (11) to that of Thomas et al., the filter cartridge of Ashelin et al. including a multilayer pleated filter media (15) which includes a filter membrane layer (21) and at least one support layer (17 or 19), as in fig. 1 and cols. 3 – 9.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the pleated filter cartridge of Thomas et al., by modifying the material of construction of the filter layer of the cartridge by substituting it with the material (i.e. filter membrane) taught by Ashelin et al., in order to provide an alternative and improved filter layer which has high porosity, high strength, high flux and superior dirt holding capacity compared to the material of the filter layer of Thomas et al. (see col. 8, lines 14 – 16).

5. Regarding claim 2, Thomas et al., as modified by Ashelin et al., have taught the limitations of claim 1 above. Thomas et al., as modified by Ashelin et al. further teach the filter media (15) including a pair of support layers (17 & 19) sandwiching the filter membrane layer (21) therebetween, as in fig. 1.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the filter cartridge of Thomas et al., as modified by Ashelin et al., by further adding the

embodiment (from one support layer to a pair of support layers) taught by Ashelin et al., in order to provide an improved filter cartridge which has greater stability and provides more support not only for an outer surface of the filter layer but also on an inner surface thereof (see col. 9 of Ashelin et al.).

6. Concerning claims 4 – 5, Thomas et al., as modified by Ashelin et al., have taught the limitations of claim 1 above. Thomas et al. further disclose the expanded plastic netting/polymeric mesh (24) exhibiting an open area of at least 40% (claim 4), and/or at least an open area of between about 50% to about 60%, as in fig. 1.

7. With respect to claim 6, Thomas et al., as modified by Ashelin et al., have taught the limitations of claim 4 above. Thomas et al., as modified by Ashelin et al., further teach the filter membrane layer (21) being consisted of PTFE (polytetrafluoroethylene) and the expanded *plastic* netting/polymeric mesh (24 of Thomas et al.) being form of a plastic material which can include PTFE. With regards to the material of construction of the expanded netting/polymeric mesh (24), the case law In re Leshin, 227 F.2d 197, 125 USPQ 416 (CCPA 1960) stated that a prima case of obviousness exists in a selection of a known plastic (in this instance, PTFE) to make a container of a type made of plastics prior to the invention. PTFE (also known as polytetrafluoroethylene) is very desirable plastic or polymeric material because it can be used at high temperatures, is chemically and physically inert, as well as chemically and physically

resistant to strong acids and oxidizing agents (as evidenced by Hawley's Condensed Chemical Dictionary for properties of PTFE, page 906).

8. Claims 7, 9 – 11 and 16 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ashelin et al. (US 5,154,827) in view of Thomas et al. (EP 213,930).

9. Regarding claim 7, Ashelin et al. disclose a filter cartridge comprising:

- concentrically disposed slotted core and cage members (23 & 25, respectively), and
- a multilayer pleated filter media (15) positioned in an annular space established between the core (23) and the cage (25) members, wherein the filter media (15) includes an inner filter membrane layer (21) sandwiched between a pair of support layers (17 & 19), wherein each of the support layers being a polymeric/plastic (formed of polyfluorocarbon material such as PTFE) mesh, and wherein individual pleats of the multilayer pleated filter media (15) having respective elongate pleat axes disposed substantially parallel to a central longitudinal axis of the filter cartridge and the polymeric/plastic meshes (17, 19) being formed of a dense plurality of generally rectangular apertures associated with each one of the individual pleats and the apertures having respective long and short dimensions and wherein each of the polymeric/plastic meshes (17, 19) are disposed such that the long dimensions of the apertures thereof being oriented substantially transverse to the elongate pleats of the pleated filter media, as in figs. 1 – 3 and cols. 3 - 9.

Ashelin et al. fail to disclose the polymeric/plastic mesh forming the support layers being an expanded polymeric/plastic mesh and the apertures being diamond-shaped.

10. Thomas et al. teach a similar pleated filter cartridge to that of Ashelin et al., the cartridge of Thomas et al. including a pleated filter media comprising an inner filter layer and at least one support layer (24) being formed by an expanded plastic netting/mesh (24), the expanded plastic netting/mesh (24) being formed by a dense plurality of generally diamond-shaped apertures, as in fig. 1 and in pages 3 – 4.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction and design (i.e. shape of the apertures) of the support layers of the filter media of the cartridge of Ashelin et al., by adding the embodiment taught by Thomas et al., in order to provide an improved and alternative design for the support layers for the filter media which provides adequate support (protection) for stability of the filter layer it is supporting and have enough porosity for providing optimum flow area for the fluid being passed therethrough.

11. With respect to claims 9 – 10, Ashelin et al., as modified by Thomas et al., have taught the limitations of claim 7 above. Thomas et al. further disclose the expanded plastic netting/polymeric mesh (24) exhibiting an open area of at least 40% (claim 4), and/or at least an open area of between about 50% to about 60%, as in fig. 1. The same motivation applied in claim 7 is being applied here.

12. Concerning claim 11, Ashelin et al., as modified by Thomas et al., have taught the limitations of claim 7 above. Ashelin et al. further disclose each of the polymeric/plastic mesh forming the support layers (17 & 19) consisting polytetrafluoroethylene (PTFE), as in col. 4.

13. With regards to claim 16, Ashelin et al. disclose a generally cylindrical filter cartridge comprising:

- an inner core member (23),
- an outer cage member (25) concentrically positioned around the inner core member (23) so as to establish an annular space therebetween, and
- a multilayer pleated filter media (15) positioned in the annular space and the filter media (15) including a filter membrane layer (21) and at least one polymeric mesh (17, 19) as a support layer for the filter membrane layer, wherein individual pleats of the 15) having respective elongate pleat axes disposed substantially parallel to a central longitudinal axis of the filter cartridge and the polymeric/plastic mesh (17, 19) being formed of a dense plurality of generally rectangular apertures associated with each one of the individual pleats and the apertures having respective long and short dimensions and wherein the polymeric/plastic mesh (17, 19) is disposed such that the long dimensions of the apertures thereof being oriented substantially transverse to the elongate pleats of the pleated filter media, as in figs. 1 – 3 and cols. 3 - 9.

Ashelin et al. fail to disclose the polymeric/plastic mesh forming the support layer being an expanded polymeric/plastic mesh and the apertures being diamond-shaped.

14. Thomas et al. teach a similar pleated filter cartridge to that of Ashelin et al., the cartridge of Thomas et al. including a pleated filter media comprising an inner filter layer and at least one support layer (24) being formed by an expanded plastic netting/mesh (24), the expanded plastic netting/mesh (24) being formed by a dense plurality of generally diamond-shaped apertures, as in fig. 1 and in pages 3 – 4.

It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the material of construction (from an ordinary plastic/polymeric mesh to an expanded polymeric/plastic mesh) and design (i.e. shape of the apertures) of the support layer of the filter media of the cartridge of Ashelin et al., by adding the embodiment taught by Thomas et al., in order to provide an improved and alternative design for the support layer for the filter media which provides adequate support (protection) for stability of the filter layer it is supporting and have enough porosity for providing optimum flow area for the fluid being passed therethrough.

15. Regarding claim 17, Ashelin et al., as modified by Thomas et al., have taught the limitations of claim 16 above. Ashelin et al. further disclose the filter media (15) including a pair of polymeric meshes as support layers (17 & 19) which sandwich the filter membrane layer (21), as in fig. 1. As a result of the combination with Thomas et al. in claim 16 from which claim 17 depends, it has been established that the polymeric mesh forming the support layer could be that of an expanded plastic/polymeric mesh.

16. With respect to claim 18, Ashelin et al., as modified by Thomas et al., have taught the limitations of claim 16 above. Ashelin et al. also disclose the filter membrane layer (21) and the polymeric mesh (17, 19) can consist of a polyfluorocarbon material, such as PTFE, as in col. 4. Once again, as a result of the combination with Thomas et al. in claim 16 from which claim 18 depends, it has been established that the polymeric mesh forming the support layer could be that of an expanded plastic/polymeric mesh.

17. Concerning claim 19, Ashelin et al., as modified by Thomas et al., have taught the limitations of claim 18 above. Ashelin et al. further disclose the inner core (23) and outer cage (25) members can consist of a polyfluorocarbon material, such as PTFE, as in col. 4, lines 30 – 34.

18. With regards to claim 20, Ashelin et al., as modified by Thomas et al., have taught the limitations of claim 16 above. Thomas et al. further disclose the expanded plastic netting/polymeric mesh (24) exhibiting an open area of at least 40%. The same motivation applied in claim 16 is applied here.

Response to Arguments and Amendments

19. Applicant's amendments and arguments filed on 12-9-02 with respect to claims 1 – 2, 4 – 7, 9 – 11 and 16 – 20 have been considered but are moot in view of the new grounds of rejections set forth above.

20. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo whose telephone number is (571) 272-1144. The examiner can normally be reached on Mondays to Fridays from 8:30 A.M. to 4:30 P.M..
22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M.S.O.


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